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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,338	10/22/2003	Takahiro Naka	448563/0233	6856

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EXAMINER	
VO, ANH T N	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/691,338	NAKA ET AL.	
	Examiner	Art Unit	
	Anh T.N. Vo	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-13* is/are rejected.

7)☒ Claim(s) *14* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/20/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL REJECTION

Claim Rejections

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-4, 6, 8-9, 11 and 13 are rejected under 35 USC 103 (a) as being unpatentable over Dietl et al (Pub. No. US2002/0063760A1) in view of Swanson et al (US 5,870,125) and further in view of Kazuo (JP02000255080A).

Dietl et al discloses in Figures 1-4 a printer comprising:

- an ink cartridge (14);
- a communication unit (18) being attached to a side of the ink cartridge (1). The communication unit has a memory (22, Figure 2) and an antenna portion of conductive pattern (24, 26);
- a detector (32, 33); and
- wherein the communication unit receives a powering signal and converting it to a DC voltage to power the integrated circuit, see lines 1-5, column 2 of page 1 or converting signal (130) from a light source into DC power as shown in Figure 4 and the last paragraph of column 1, page 2.

However, Dietl et al does not disclose that the ink cartridge (14) has a bottom-

box type container which includes a liquid supply port and a lid member sealing an opening portion, the communication unit (18) is provided on a wall opposed to wall in which said liquid supply port is formed and includes the antenna portion being coupled to the memory and having conductive pattern, and the antenna portion can receive a carrier wave which is converted into DC power.

Nevertheless, Swanson et al suggests in Figure 3-5 an ink cartridge comprising a lid (70) for covering an opening at a side for reducing the footprint size of the printer, see the Abstract.

Furthermore, Kazuo suggests in Figures 1-2 an ink cartridge (1) having a communication unit (7) placed within a recess on a top wall opposed to a wall in which an inherent ink supply port connected to a printhead (5) for easily detecting the cartridge type with low cost, see the Abstract.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the ink cartridge as suggested by Swanson et al et al in the printer of Dietl et al for the purpose of reducing the footprint size of the printer and for placing the communication unit of Dietl at the top wall as suggested by Kazuo for the purpose of easily detecting the ink cartridge with low cost.

With regard to claim 8, wherein the communication unit (7) is placed on a recess as shown on Figure 2 of Kuzuo.

With regard to claim 9, since the communication unit is housed within the recess as shown in Figure 2 of Kuzuo, the antenna portion in the modified ink container of Dietl would be fitted within the recess. Thus, the depth of the recess should be larger than the thickness of the antenna portion.

With regard to claim 13, the antenna portion of Dietl is the microstrip/stripline antenna and its conductive pattern (24, 26) is not shown in the real physical dimension. As well known in the art, the dimension of the lines (24, 26) and their real surface area are determined by the operating frequency of the antenna since an antenna operating at lower frequency would occupy

an area larger than an antenna operating at higher frequency. Also, the conductive pattern of the microstrip antenna can be arranged in rectangular shape or spiral shape or both shapes depending upon the mounting surface, see the antenna pattern being arranged in Figure 4 of the Morizumi et al reference (US 6,459,588) or in Figure 1 of the Riso Chem (JP2002-159653). Thus, selecting the antenna pattern to fit to the wall of the ink container that occupies at least 70% of the wall as claimed is considered to be a matter of a design expedient for an engineer depending upon the operating frequency of the antenna and the size of the wall. Lacking of showing any criticality, it would have been obvious to a person having skill in the art at the time the invention was made to rearrange and select the conductive portion of Dietl as claimed for the purpose of accommodating with the antenna operating frequency and the size of the wall.

Claim 5 is rejected under 35 USC 103 (a) as being unpatentable over Dietl et al (Pub. No. US2002/0063760A1) in view of Swanson et al (US 5,870,125) and further in view of Watabiki Kazuo (JP02000255080A) and Michiharu (JP02000203047A).

Dietl et al in view of Swanson et al and Kazuo disclose a printer with all of the limitations of the base claim as stated above but does not disclose a detection unit for detecting an amount of said liquid.

Nevertheless, Michiharu suggests in Figure 5 a detection unit (408) coupled to an antenna (606) on a circuit board (602) which is attached to ink cartridges (IT) for detecting amount of ink (running out of ink) easily with high reliability, see the Abstract.

It would have been obvious to a person having skilled in the art at the time the invention was made to employ the detection unit as suggested by Michiharu in the modified ink cartridge of Diel et al for the purpose of detecting running out of ink easily with high reliability.

Claims 7 and 12 are rejected under 35 USC 103 (a) as being unpatentable over Dietl et al (US2002/0063760A1) in view of Swanson et al (US 5,870,125) and further in view of Kazuo (JP02000255080A) and Inoue et al (US 5,619,237).

Dietl et al in view of Kazuo and Swanson et al discloses a printer with all of the limitations of the base claim as stated above but does not disclose that the width of the ink containers are different according to a kind of the liquid and the ink container includes a lever supporting an attachment operation.

Nevertheless, Inoue et al suggests in Figure 28b a color ink cartridge (140) having a width larger than the width of a black ink cartridge (130) to prevent them from mounting to wrong mounting side, see lines 38-47, column 23, and latch levels (132e, 142e) for securely locking the ink cartridges to the holder.

It would have been obvious to a person having skill in the art at the time the invention was made to make the width of the modified ink cartridge of Dietl in different thickness according to the colors and employ a latch level as suggested by Inoue et al for the purpose of preventing the ink cartridges from mounting to wrong mounting side and securely locking the cartridges to the holder.

Claim 10 is rejected under 35 USC 103 (a) as being unpatentable over Dietl et al (Pub. No. US2002/0063760A1) in view of Swanson et al (US 5,870,125) and further in view of Kazuo (JP02000255080A) and Morizumi et al (US 6,459,588).

Dietl et al in view of Kazuo and Swanson et al discloses a printer with all of the limitations of the base claim as stated above but does not disclose a cover material being applied to the surface of the antenna portion.

Nevertheless, Morizumi et al suggests in Figure 1 to place protective layers (16a, 16b) over an antenna portion (13) for protecting the antenna portion from damage.

It would have been obvious to a person having skill in the art at the time the invention was made to cover the antenna portion Deitl et al with a protective material as suggested by Morizumi et al for the purpose of protecting the antenna from damage.

Response to Applicant's Arguments

The applicant argues that the element (5) of Watabiki is the printhead, not the liquid supply port. Thus, Watabiki cannot suggest the antenna portion on a wall opposed to a wall in which the liquid supply port is formed. The argument is not persuasive. Although Watabiki does not show internal connection between the reservoir and the printhead (5); however, the printhead (5) is inherently connected to the ink chamber inside the body (3) of the cartridge (1) through an inherently supply port in order to receive the internal ink from the ink chamber. Without the ink supply port, the internal ink cannot be supplied to the printhead. Thus, Watabiki clearly suggest a communication unit (7) to be placed on the top wall opposed the ink supply port. See how the internal ink being delivered from the ink chamber through an ink supply port (19) to a printhead as shown in Figure 2 of Gragg et al (US 5,574,490).

Allowable Subject Matter

Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. This claim is allowed because the prior art of record fails to suggest the limitation "after stopping transmission of the carrier wave, the memory unit calculates an amount of said liquid housed in the container based on a signal from a sensor, and the amount of said liquid data about said liquid stored in the memory section are transmitted from said antenna portion to the recording apparatus".

CONCLUSION

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period; then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Anh Vo whose telephone number is (571) 272-2262. The fax number of this Group 2800 is (571) 273-8300.

ANH T.N. VO
PRIMARY EXAMINER
June 8, 2006